EPA Comments on Chemical RTK Challenge Submission:

Cyclic Neopentanetetrayl Diphenyl Phosphite

SUMMARY OF EPA COMMENTS

The sponsor, GE Plastics Co., submitted a Robust Summary to EPA dated May 31, 2000, and a test plan to the HPV Tracking System Web site (www.hpvchallenge.com) for Cyclic neopentanetetrayl diphenyl phosphite (CAS No. 144-35-4). EPA posted the submission on the ChemRTK Web site on June 13, 2000.

EPA has reviewed this submission and has reached the following conclusions:

1. EPA reaffirms its commitment to the principles outlined in the October 14, 1999 letter and advises that any new animal testing be deferred until November, 2001.

2. The submission comprises a minimally acceptable test plan overall.

3. Chemical characterization. A brief statement of the uses of the chemical would help reviewers assess the appropriateness of some of the proposed tests.

4. Proposed health endpoint testing: Acute toxicity. The proposal is to conduct acute toxicity using both the oral and dermal routes of administration. An acute oral toxicity study would satisfy the needs of the U.S. HPV Challenge Program. There is no rationale presented for conducting an acute dermal toxicity study.

5. Proposed health endpoint testing: Developmental toxicity. The proposal includes conducting a combined repeat dose/reproductive/developmental toxicity screening test (OECD Test Guideline 422) in addition to a pre-natal developmental toxicity test (OECD 414). There is no rationale presented for conducting both tests. The OECD 422 screening study is sufficient to cover all three endpoints (repeat dose, reproductive and developmental toxicity) for the purposes of the U.S. HPV Challenge Program.

6. Proposed health and ecological effects testing: The sponsor proposes to perform testing beyond the recommendations of the U.S. HPV Challenge Program. EPA presumes that these tests may be needed for purposes outside of the U.S. HPV Challenge Program. See comments on this issue from the sponsor under “Letter of Clarification” for this submission on this Web site.

7. Fate. The model to be used is not specified. EPA recommends that the EQC Level III model be used to estimate transport and distribution for the purposes of the U.S. HPV Challenge Program.

EPA COMMENTS ON THE CYCLIC NEOPENTANETETRAYL DIPHENYL PHOSPHITE CHALLENGE SUBMISSION

General

The sponsor supplied a minimally acceptable package. However, the test plan on the industry tracker Web site and the test plan summary table preceding the robust summary submission to the EPA did not agree in all respects.

There was no statement about the uses of the HPV chemical, which makes it difficult to assess the appropriateness of some of the proposed tests (e.g., whether there is a need to conduct an acute dermal toxicity test).

Test Plan

Chemistry (melting point, boiling point, vapor pressure, water solubility, and partition coefficient).

Data were submitted for vapor pressure. The sponsor’s approach for the remaining endpoints should satisfy the needs of the U.S. HPV Challenge Program.

Fate (photodegradation, stability in water, biodegradation, and transport/distribution).

EPA believes the sponsor's approach should satisfy these endpoints. However, the test plan does not specify the model to be used for transport/distribution estimation. EPA prefers the EQC Level III fugacity model (available free from http://www.trentu.ca/academic/aminss/envmodel/) for the U.S. HPV Challenge Program.

Health Effects (acute toxicity, repeat dose toxicity, genetic toxicity, and reproductive/developmental toxicity).

EPA believes the sponsor's approach should satisfy these endpoints. However, EPA also notes:

1. Acute toxicity: The proposal is to conduct acute toxicity testing by both the oral and dermal routes of administration. There is no explanation for conducting acute studies by two routes. An acute oral toxicity study is sufficient for the U.S. HPV Challenge Program.

2. Developmental toxicity: The proposal includes conducting a combined repeat dose/reproductive/developmental toxicity screening test (OECD Test Guideline 422) in addition to a pre-natal developmental toxicity test (OECD 414). There is no rationale presented for conducting both tests. The screening study is sufficient to cover all three endpoints (repeat dose, reproductive and developmental toxicity) for the purposes of the U.S. HPV Challenge Program.

3. Genotoxicity: The sponsor is proposing to conduct an in vivo genotoxicity study, which is beyond the needs of the U.S. HPV Challenge Program. There is no rationale presented for conducting this test.

Ecological Effects. The proposal includes conducting the acute base set testing on fish (OECD Test Guideline 203), algae (OECD Test Guideline 201), and daphnid (OECD Test Guideline 202). In addition, a daphnid reproduction test (OECD Test Guideline 211) will be conducted. The chronic daphnid test is considered a "conditional" SIDS-level test and may not be necessary for the U.S. HPV Challenge Program. The results of the water solubility, partition coefficient, and acute aquatic toxicity tests will determine the need for such a test.

Specific Comments on Robust Summaries

EPA evaluations are based on the guidance document available at http:\\www.epa.gov/opptintr/chemrtk/guidocs.htm.

Chemistry

EPA evaluated the single robust summary submitted (vapor pressure) and found it adequate for the purposes of the U.S. HPV Challenge Program.